



Db	61	vcapopdhyyddswttsatseclycsbpvckelgyvqgecnrtmrryceekegryyleiefcl	120
Qy	61	vcAPCPdhytYDdSWHTSDECLYCSPVCKELQYVQGEONRTHNRNCEKEGRYLEIEFC	120
Db	121	hnsccppggyvvaqgtrpentvckrcpbgdfinessskaptckkhncsvfgllltqgnat	180
Qy	121	hNSCCPPGgyVvAQgTRPENTVckRCpBGdfINeSSsKApTCkKHncSVFGllLTQGNAT	180
Db	181	hdnicsgmsesctqcgidvltlceeafrfayptkftdmwlsylvdnlpjgkynaesveri	240
Qy	181	hDNICSGMSestQCgIDVtLCEeAfrfAYptKftDMwLSyLVdNlPjgKYNaesVERI	240
Db	241	krqhsaqeqctfqlklwkhqnkddqivvklqdidlceusvqrhighanltfegslsime	300
Qy	241	KRQHSaQEQctfQLklWKhqnKddQivvKlQdiDlCeusVQRhIGhANLtfEGslSImE	300
Db	301	slpgykkyvaediektikacbpqdqllklslswrlkngdqtlyxlmhalxkstkynfxt	360
Qy	301	SLPGKkyvAEIdIEKtIKaCbpQDqllKlslSWrlKngDqtLyxLmHALxKStkYnFxt	360
	361	vtqslkktirflhsftmyklyqkflflemigqvsvtscl	401
Qy	361	vtQSLkktIRflHSftMYkLYqKflfLEmIGqvSVtsCL	401

ID	Accession	Description	Score	DB	Length
2	Result				
1D	R99932	standard; Protein; 401 AA.			
AC	R99932	1997 (first entry)			
DT	22-APR-1997				
DE	Mutated OCIF, OCIF-C20S.				
KW	Osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption; osteoporosis.				
OS	Synthetic.				
Key	Location/Qualifiers				
FT	Peptide	1..21			
FT	/note="Signal peptide"				
FT	Protein	22..401			
FT	/note="Mature OCIF-C20S"				
FT	Misc.difference	202			
FT	/label= C20S				
PN	W09626217-A1.				
PD	29-AUG-1996.				
PR	20-FEB-1996; J00374.				
PR	20-FEB-1995; JP-054977.				
PR	21-JUL-1995; JP-207508.				
PA	(SNOW) SNOW BRAND MILK PROD CO LTD.				
PI	Goto M, Higashio K, Kobayashi F, Mochizuki S, Morinaga T, Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K, Yasuda H; WPI: 96-40230/40.				
LN	N-PSDB: Tj3162.				
PT	DNA encoding osteoclastogenesis inhibitory factor protein - useful for bone resorption control, esp. treatment of osteoporosis				
PS	Claim 32: Page 96-98: 183pp; Japanese.				
CC	This sequence represents a mutated version of the full length osteoclastogenesis inhibitory factor (OCIF) of the invention. This sequence represents OCIF-C20S in which the 20th Cys residue in the mature OCIF protein is substituted by Ser. The OCIF of the invention has a molecular weight by SDS-PAGE of 60 kD under reducing conditions and 120 kD under non-reducing conditions. The protein is adsorbed onto cation-exchangers or heparin and its activity is lowered after 10 mins at 70 deg.C or 30 mins at 56 deg.C, and is lost after 10 mins at 90 deg.C. OCIF is useful in the control of bone resorption and therefore in the treatment and prevention of disorders of bone resorption, e.g. osteoporosis.				
CC	Sequence 401 AA;				
Query Match	99.3%; Score 3010; DB 20; Length 401;				
Best Local Similarity	99.5%; Pred. No. 6.52e-294;				
Matches 399; Conservative	1; Mismatches 1; Indels 0; Gaps 0.				

Qy	1	mnkllcslalvflldisikmttqetfpprkxlnhndehshlloddkercpgrylmohncakmkt	60
Db	61	vcapcpdhyutdswhtsgeclcybspvckelgyvqxqecmrtnrvceckegryleiefclx	120
Qy	61	vcapcpdhyutdswhtsgeclcybspvckelgyvqxqecmrtnrvceckegryleiefclx	120
Db	121	hrcsppfgvwwqaqtrpentrvcikcpgdfifsnetskacpcrthkncsvfglllvcqgnat	180
Qy	121	hrcsppfgvwwqaqtrpentrvcikcpgdfifsnetskacpcrthkncsvfglllvcqgnat	180
Db	181	hnh:issgnsesrqtgkigavtliseaefvayprikftmwlsvlvdhlgctkvnaesvari	240
Qy	181	hnh:issgnsesrqtgkigavtliseaefvayprikftmwlsvlvdhlgctkvnaesvari	240
Db	241	krghssgsgtfgllkrlwkhqmkdqiivklllqddlccensvgrhghanlftfeqrlsime	300
Qy	241	krghssgsgtfgllkrlwkhqmkdqiivklllqddlccensvgrhghanlftfeqrlsime	300
Db	301	slrpgkivaediektikacckpsdqllkllslwrlknqgdtckgimhalhsktyhfrkt	360
Qy	301	slrpgkivaediektikacckpsdqllkllslwrlknqgdtckgimhalhsktyhfrkt	360
Db	361	vtqslkkttrfihstfmyklyqkfliemhngvqsvkslcl	401
Qy	361	vtqslkkttrfihstfmyklyqkfliemhngvqsvkslcl	401

DB	Accession	Score	Length	Query Match	Best Local Similarity	Match	Conservative	Index	Gaps
1	mmnlccalcivfidisikwtgetifpkylyhydeetsqjldckpcptylkqhctakwt	60	401	99.3%	99.5%	399	I; Mismatches 1;	0	0
3	R99931	standard; Protein; 401 AA.							
DT	22-APR-1997	(first entry)							
DE	Mutated OCIF, OCIF-C19S.								
KW	Osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption; osteoporosis.								
OS	Synthetic.								
FT	Key	Location/Qualifiers							
FT	Peptide	1..21							
FT	/note= "Signal peptide"								
FT	Protein	22..401							
FT	/note= "Mature OCIF-C19S"								
FT	Misc_difference	195							
FT	/label= C19S								
PN	W09626217-A1.								
PD	29-AUG-1996.								
PF	20-FEB-1996; J00374.								
PR	20-FEB-1995; JP-054977.								
PR	21-JUL-1995; JP-207508.								
PA	(SNOW) SNOW BRAND MILK PROD CO LTD.								
PI	Goto M, Higashio K, Kobayashi F, Mochizuki S, Morinaga T;								
PI	Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K, Yasuda H;								
DR	WPI: 96-402320/40.								
DR	N-PSDB: T33161.								
FT	DNA encoding osteoclastogenesis inhibitory factor protein - useful								
FT	for bone resorption control, esp. treatment of osteoporosis								
PS	Claim 29; Page 94-96; 183pp; Japanese.								
CC	This sequence represents a mutated version of the full length								
CC	osteoclastogenesis inhibitory factor (OCIF) of the invention. This								
CC	sequence represents OCIF-C19S in which the 19th Cys residue in the								
CC	mature OCIF protein is substituted by Ser. The OCIF of the invention								
CC	has a molecular weight by SDS-PAGE of 60 kD under reducing conditions								
CC	and 120 kD under non-reducing conditions. The protein is adsorbed onto								
CC	cation-exchangers or heparin and its activity is lowered after 10 mins								
CC	at 70 deg.C or 30 mins at 56 deg.C, and is lost after 10 mins at 90								
CC	deg.C. OCIF is useful in the control of bone resorption and therefore								
CC	in the treatment and prevention of disorders of bone resorption, e.g.								
CC	osteoporosis.								
CC	Sequence 401 AA;								
Query Match	99.3%	Score 3010;	DB 20;	Length 401;					
Best Local Similarity	99.5%	Pred. NO. 6.52e-294;							
Matches 399;	Conservative	I; Mismatches 1;	Indels 0;	Gaps 0;					

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OY 1 MNKLCCALVFDISIKWTQETFPKYLHDEETSHQLLDCRCPGTYLKQCHTAKMKT 60
DB 61 VCAPCPDHYTDSWHTSDCLYCSPVCKELQYVKGECDRTNVRCECKEGRYLELEFCIK 120
OY 61 VCAPCPDHYTDSWHTSDCLYCSPVCKELQYVKGECDRTNVRCECKEGRYLELEFCIK 120
OY 121 HSCPPGFVAVAGTPEPNTVCKRCPDGFNSNETSKAPCRKHTNCSVGLLLTQGNAT 180
DB 121 HSCPPGFVAVAGTPEPNTVCKRCPDGFNSNETSKAPCRKHTNCSVGLLLTQGNAT 180
OY 121 HSCPPGFVAVAGTPEPNTVCKRCPDGFNSNETSKAPCRKHTNCSVGLLLTQGNAT 180
OY 121 HSCPPGFVAVAGTPEPNTVCKRCPDGFNSNETSKAPCRKHTNCSVGLLLTQGNAT 180
DB 181 HSCPPGFVAVAGTPEPNTVCKRCPDGFNSNETSKAPCRKHTNCSVGLLLTQGNAT 240
OY 181 HSCPPGFVAVAGTPEPNTVCKRCPDGFNSNETSKAPCRKHTNCSVGLLLTQGNAT 240
DB 181 HSCPPGFVAVAGTPEPNTVCKRCPDGFNSNETSKAPCRKHTNCSVGLLLTQGNAT 240
OY 181 HSCPPGFVAVAGTPEPNTVCKRCPDGFNSNETSKAPCRKHTNCSVGLLLTQGNAT 240
DB 241 KQHSSQEQTFGLKLMKQKNDQDITVKRIODIDCENSVOHGHANLFEQLSLME 300
OY 241 KQHSSQEQTFGLKLMKQKNDQDITVKRIODIDCENSVOHGHANLFEQLSLME 300
DB 241 KQHSSQEQTFGLKLMKQKNDQDITVKRIODIDCENSVOHGHANLFEQLSLME 300
OY 241 KQHSSQEQTFGLKLMKQKNDQDITVKRIODIDCENSVOHGHANLFEQLSLME 300
DB 301 SLPGKVGAEDEIKTIKACKPSDQILKLSLWRKNGDQDITLGLMHALKHSTYHFPT 360
OY 301 SLPGKVGAEDEIKTIKACKPSDQILKLSLWRKNGDQDITLGLMHALKHSTYHFPT 360
DB 301 SLPGKVGAEDEIKTIKACKPSDQILKLSLWRKNGDQDITLGLMHALKHSTYHFPT 360
OY 301 SLPGKVGAEDEIKTIKACKPSDQILKLSLWRKNGDQDITLGLMHALKHSTYHFPT 360

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RESULT 4  
ID R9993 standard; Protein: 401 AA.

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AC R9993;
DT 22-APR-1997 (first entry)
DE Mutated OCIF, OCIF-C21S.
KM Osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption;
  osteoporosis.
OS Synthetic.
FH Key Location/Qualifiers
FT Peptide 1..21
FT /note="Signal peptide"
FT Protein 22..401
FT /note="Mature OCIF-C21S"
FT MISC-difference 277
FT /label="C21S"
PN WO9626217-A1.
PD 29-AUG-1996.
PF 20-FEB-1996; JP-054977.
PR 20-FEB-1995; JP-207508.
PI Goto M, Higashio K, Kobayashi F, Mochizuki S, Morinaga T;
  Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K, Yasuda H;
  WPI: 96-402320/40.
DR N-PSDB; T33163.
PT DNA encoding osteoclastogenesis inhibitory factor protein - useful
  for bone resorption control, esp. treatment of osteoporosis
PS Claim 35, Page 98-100; 183pp; Japanese.
CC This sequence represents a mutated version of the full length
  osteoclastogenesis inhibitory factor (OCIF) of the invention. This
  sequence represents OCIF-C21S in which the 21st Cys residue in the
  mature OCIF protein is substituted by Ser. The OCIF of the invention
  has a molecular weight by SDS-PAGE of 60 kD under reducing conditions
  and 120 kD under non-reducing conditions. The protein is adsorbed onto
  cation-exchangers or heparin and its activity is lowered after 10 mins
  at 70 deg.C or 30 mins at 56 deg.C, and is lost after 10 mins at 90
  deg.C. OCIF is useful in the control of bone resorption and therefore
  in the treatment and prevention of disorders of bone resorption, e.g.
  osteoporosis.
CC Sequence 401 AA;

```

Query Match 99.2%; Score 3006; DB 20; Length 401;  
Best Local Similarity 99.0%; Pred. No. 1.69e-293;  
Matches 397; Conservative 3; Mismatches 1; Indels 0; Gaps 0;

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DB 1 MNKLCCALVFDISIKWTQETFPKYLHDEETSHQLLDCRCPGTYLKQCHTAKMKT 60
OY 1 MNKLCCALVFDISIKWTQETFPKYLHDEETSHQLLDCRCPGTYLKQCHTAKMKT 60
DB 61 VCAPCPDHYTDSWHTSDCLYCSPVCKELQYVKGECDRTNVRCECKEGRYLELEFCIK 120
OY 61 VCAPCPDHYTDSWHTSDCLYCSPVCKELQYVKGECDRTNVRCECKEGRYLELEFCIK 120
OY 121 HSCPPGFVAVAGTPEPNTVCKRCPDGFNSNETSKAPCRKHTNCSVGLLLTQGNAT 180
DB 121 HSCPPGFVAVAGTPEPNTVCKRCPDGFNSNETSKAPCRKHTNCSVGLLLTQGNAT 180
OY 121 HSCPPGFVAVAGTPEPNTVCKRCPDGFNSNETSKAPCRKHTNCSVGLLLTQGNAT 180
OY 121 HSCPPGFVAVAGTPEPNTVCKRCPDGFNSNETSKAPCRKHTNCSVGLLLTQGNAT 180
DB 181 HSCPPGFVAVAGTPEPNTVCKRCPDGFNSNETSKAPCRKHTNCSVGLLLTQGNAT 240
OY 181 HSCPPGFVAVAGTPEPNTVCKRCPDGFNSNETSKAPCRKHTNCSVGLLLTQGNAT 240
DB 181 HSCPPGFVAVAGTPEPNTVCKRCPDGFNSNETSKAPCRKHTNCSVGLLLTQGNAT 240
OY 181 HSCPPGFVAVAGTPEPNTVCKRCPDGFNSNETSKAPCRKHTNCSVGLLLTQGNAT 240
DB 241 KQHSSQEQTFGLKLMKQKNDQDITVKRIODIDCENSVOHGHANLFEQLSLME 300
OY 241 KQHSSQEQTFGLKLMKQKNDQDITVKRIODIDCENSVOHGHANLFEQLSLME 300
DB 241 KQHSSQEQTFGLKLMKQKNDQDITVKRIODIDCENSVOHGHANLFEQLSLME 300
OY 241 KQHSSQEQTFGLKLMKQKNDQDITVKRIODIDCENSVOHGHANLFEQLSLME 300
DB 301 SLPGKVGAEDEIKTIKACKPSDQILKLSLWRKNGDQDITLGLMHALKHSTYHFPT 360
OY 301 SLPGKVGAEDEIKTIKACKPSDQILKLSLWRKNGDQDITLGLMHALKHSTYHFPT 360
DB 301 SLPGKVGAEDEIKTIKACKPSDQILKLSLWRKNGDQDITLGLMHALKHSTYHFPT 360
OY 301 SLPGKVGAEDEIKTIKACKPSDQILKLSLWRKNGDQDITLGLMHALKHSTYHFPT 360

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RESULT 5  
ID R9994 standard; Protein: 399 AA.

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AC R9994;
DT 23-APR-1997 (first entry)
DE Mutated OCIF, OCIF-CL.
KM Osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption;
  osteoporosis.
OS Synthetic.
FH Key Location/Qualifiers
FT Peptide 1..21
FT /note="Signal peptide"
FT Protein 22..399
FT /note="Mature OCIF-CL"
PN WO9626217-A1.
PD 29-AUG-1996.
PF 20-FEB-1996; J00374.
PR 20-FEB-1995; JP-054977.
PI Goto M, Higashio K, Kobayashi F, Mochizuki S, Morinaga T;
  Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K, Yasuda H;
  WPI: 96-402320/40.
DR N-PSDB; T33172.
PT DNA encoding osteoclastogenesis inhibitory factor protein - useful
  for bone resorption control, esp. treatment of osteoporosis
PS Claim 62, Page 117-119; 183pp; Japanese.
CC This sequence represents a mutated version of the full length
  osteoclastogenesis inhibitory factor (OCIF) of the invention. This
  sequence represents OCIF-CL in which amino acids 379-380 of the
  mature OCIF protein are deleted. The OCIF of the invention
  has a molecular weight by SDS-PAGE of 60 kD under reducing conditions
  and 120 kD under non-reducing conditions. The protein is adsorbed onto
  cation-exchangers or heparin and its activity is lowered after 10 mins
  at 70 deg.C or 30 mins at 56 deg.C, and is lost after 10 mins at 90
  deg.C. OCIF is useful in the control of bone resorption and therefore
  in the treatment and prevention of disorders of bone resorption, e.g.
  osteoporosis.
CC Sequence 399 AA;

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Query Match 99.1%; Score 3003; DB 20; Length 399;  
Best Local Similarity 99.7%; Pred. No. 3.46e-293;  
Matches 398; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

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QY 1 MNKLCCALVFLDISIKWTOETFPFKLYHDEFTSHQLCDKCPGTYLKQHCATKWT 60
Db 61 vcacpdpdytswhtshtdeclcysspyckelgyvqecnrthrvceckegryleiefclx 120
QY 61 VCACPDPHYTDSWHTSDECLCYSPVCKELGYVQECNRTHRVCECKEGRYLEIEFCLK 120
Db 121 hrscppgfyvvgagtpcrntvckrcpdpffsnetsskarpckhntncsvfgllltqknat 180
QY 121 HRSCPFGVVGAGTPECRNTVCKRCPDGFFSNETSAPCKRKHNTNCVFGLLLTQKNAT 180
Db 121 hrscppgfyvvgagtpcrntvckrcpdpffsnetsskarpckhntncsvfgllltqknat 180
QY 121 HRSCPFGVVGAGTPECRNTVCKRCPDGFFSNETSAPCKRKHNTNCVFGLLLTQKNAT 180
Db 181 hdnicsgnsesgkcgldvltceaeaffrfavpkfcpnwlsylvdnlpgrkvnaesveri 240
QY 181 HDNICSGNSESSTQKCGLDVLTCEAEAFFRFAPVKFCPNWLSVLDNLPGRKVNAESVERI 240
Db 241 krqhsqegqfqlklkvhknkqddvkkliqddldicnsqvrhghantlfeqlrsime 300
QY 241 KROHSSQEQTFQLKLKVKHKNKQDDIVKKLIQDDLDICNSVQRHGHANTLFEQLRSIME 300
Db 301 slpgkkygaediektlckspdqqlkllslwrkngdgtlklglnhalhsktyhfpkt 360
QY 301 SLPGKKYGAEDIEKTIACKPSDQILKLLSLWRKNGDGTLLKGLNHALHKSXTYHFPKT 360
Db 361 vtgsllkrtirflhsftmyklyqklflemignqgsvkisc 399
QY 361 VTOSLKTIRFLHSFTMYKLYQKLFLEMIGNQGVSKIS 399

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RESULT 6
ID R99934 standard; Protein; 401 AA.
AC R99934;
DT 22-APR-1997 (first entry)
DE Mutated OCIF, OCIF-C23S.
KW Osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption;
OS Osteoporosis.
FS Synthetic.
FH key Location/Qualifiers
FT peptide 1..21
FT /note= "Signal peptide"
FT protein 22..401
FT /note= "Mature OCIF-C23S"
FT misc-difference 277
FT /label= C23S
PN MO9626217-A1.
PD 28-AUG-1996.
PF 20-FEB-1995; JP-054977.
PR 21-JUL-1995; JP-207508.
PA (SNOW ) SNOW BRAND MILK PROD CO LTD.
PI Goto M, Higashio K, Kobayashi F, Mochizuki S, Morinaga T;
PI Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K, Yasuda H;
PI WPI: 96-402320/40.
DR N-PSDB: T33164.
PT DNA encoding osteoclastogenesis inhibitory factor protein - useful
PT for bone resorption control, esp. treatment of osteoporosis
PS Claim 38, Page 100-102; 183pp; Japanese.
CC This sequence represents a mutated version of the full length
CC osteoclastogenesis inhibitory factor (OCIF) of the invention. This
CC sequence represents OCIF-C23S in which the 22nd Cys residue in the
CC mature OCIF protein is substituted by Ser. The OCIF of the invention
CC has a molecular weight by SDS-PAGE of 60 kd under reducing conditions
CC and 120 kd under non-reducing conditions. The protein is adsorbed onto
CC cation-exchangers or heparin and its activity is lowered after 10 mins
CC at 70 deg.C or 30 mins at 56 deg.C, and is lost after 10 mins at 90
CC deg.C. OCIF is useful in the control of bone resorption and therefore
CC in the treatment and prevention of disorders of bone resorption, e.g.
CC osteoporosis.
SQ Sequence 401 AA:

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Query Match 99.1%; Score 3004; DB 20; Length 401;  
 Best Local Similarity 99.3%; Pred. No. 2,73e-293;  
 Matches 398; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

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Db 1 mnllccalvfldisikwtgetfppkylhydeetsqllcdkcpptylkqhcatakwt 60
QY 1 MNKLCCALVFLDISIKWTOETFPFKLYHDEFTSHQLCDKCPGTYLKQHCATKWT 60
Db 61 vcacpdpdytswhtshtdeclcysspyckelgyvqecnrthrvceckegryleiefclx 120
QY 61 VCACPDPHYTDSWHTSDECLCYSPVCKELGYVQECNRTHRVCECKEGRYLEIEFCLK 120
Db 121 hrscppgfyvvgagtpcrntvckrcpdpffsnetsskarpckhntncsvfgllltqknat 180
QY 121 HRSCPFGVVGAGTPECRNTVCKRCPDGFFSNETSAPCKRKHNTNCVFGLLLTQKNAT 180
Db 121 hrscppgfyvvgagtpcrntvckrcpdpffsnetsskarpckhntncsvfgllltqknat 180
QY 121 HRSCPFGVVGAGTPECRNTVCKRCPDGFFSNETSAPCKRKHNTNCVFGLLLTQKNAT 180
Db 181 hdnicsgnsesgkcgldvltceaeaffrfavpkfcpnwlsylvdnlpgrkvnaesveri 240
QY 181 HDNICSGNSESSTQKCGLDVLTCEAEAFFRFAPVKFCPNWLSVLDNLPGRKVNAESVERI 240
Db 241 krqhsqegqfqlklkvhknkqddvkkliqddldicnsqvrhghantlfeqlrsime 300
QY 241 KROHSSQEQTFQLKLKVKHKNKQDDIVKKLIQDDLDICNSVQRHGHANTLFEQLRSIME 300
Db 301 slpgkkygaediektlckspdqqlkllslwrkngdgtlklglnhalhsktyhfpkt 360
QY 301 SLPGKKYGAEDIEKTIACKPSDQILKLLSLWRKNGDGTLLKGLNHALHKSXTYHFPKT 360
Db 361 vtgsllkrtirflhsftmyklyqklflemignqgsvkisc 401
QY 361 VTOSLKTIRFLHSFTMYKLYQKLFLEMIGNQGVSKISCL 401

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RESULT 7
ID R99935 standard; Protein; 401 AA.
AC R99935;
DT 22-APR-1997 (first entry)
DE Mutated OCIF, OCIF-C23S.
KW Osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption;
OS Osteoporosis.
FS Synthetic.
FH key Location/Qualifiers
FT peptide 1..21
FT /note= "Signal peptide"
FT protein 22..401
FT /note= "Mature OCIF-C23S"
FT misc-difference 400
FT /label= C23S
PN MO9626217-A1.
PD 28-AUG-1996.
PF 20-FEB-1995; JP-054977.
PR 21-JUL-1995; JP-207508.
PA (SNOW ) SNOW BRAND MILK PROD CO LTD.
PI Goto M, Higashio K, Kobayashi F, Mochizuki S, Morinaga T;
PI Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K, Yasuda H;
PI WPI: 96-402320/40.
DR N-PSDB: T33165.
PT DNA encoding osteoclastogenesis inhibitory factor protein - useful
PT for bone resorption control, esp. treatment of osteoporosis
PS Claim 41, Page 103-105; 183pp; Japanese.
CC This sequence represents a mutated version of the full length
CC osteoclastogenesis inhibitory factor (OCIF) of the invention. This
CC sequence represents OCIF-C23S in which the 23rd Cys residue in the
CC mature OCIF protein is substituted by Ser. The OCIF of the invention
CC has a molecular weight by SDS-PAGE of 60 kd under reducing conditions
CC and 120 kd under non-reducing conditions. The protein is adsorbed onto
CC cation-exchangers or heparin and its activity is lowered after 10 mins
CC at 70 deg.C or 30 mins at 56 deg.C, and is lost after 10 mins at 90
CC deg.C. OCIF is useful in the control of bone resorption and therefore
CC in the treatment and prevention of disorders of bone resorption, e.g.
CC osteoporosis.
SQ Sequence 401 AA:

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Query Match 98.9%; Score 2996; DB 20; Length 401;  
 Best Local Similarity 99.3%; Pred. No. 1.84e-292;  
 Matches 398; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

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Db      1 mnnllccalvfidisikwtgetfppkylyhydeetsbqllcdkcpptylykqhctakwkt 60
      ||:|||||
QY      1 MNKLCCALVFIDISIKWTGETFPPKYLHYDEETSHQLLDCPCPGTYLKQHCIAKWKMT 60
Db      61 vcapcpdhytidswhtsdeslycspvckelgyvkgecnrthnrveeckegryleiefcl 120
      ||:|||||
QY      61 VCAPCPDHYTIDSWHSDCLYCSPVCKELQYVKGECONRTHNRVEECKEGRYLEIEFCL 120
Db      121 hscppgfvvgaqgperntvckrcpddgffsnetskapcrkhtncsvfgllltqgnat 180
      ||:|||||
QY      121 HSCPPGFGVGAQGPERRNTVCKRCPDGFSSNETSKAPCRKHTNCSVFGLLLTQGNAT 180
Db      181 hdnicsgnsesqkcgldvtlceeafrfavptkftpnwlsyvdnlpgtkvnaesveri 240
      ||:|||||
QY      181 HDNICSGNSESQKCGIDVTLCEEAFFRAVPTKFTPNWLSYVDNLPGTKVNAESVERI 240
Db      241 krqhsaqegtfqlklwkhqndqdvkklldqldcensvgrhlganltfeqlrsme 300
      ||:|||||
QY      241 KROHSSQEQTFQLKLWKHQNDQDVKKLIDIDICENSVGRHIGHANLTFEQLRSME 300
Db      301 slpgkkyvgaediektlkaekpsdqllklslwrlnkgddtllglnhalhsktyhfpkt 360
      ||:|||||
QY      301 SLPGKKVGAEDIEKTIKACKPSDOIKLKLSLWRKNGDDTLGLMHALKHSTYHFPKT 360
Db      361 vtqslkktirflhsftmyklygklflemignvqsvkissl 401
      ||:|||||
QY      361 VTQSLKKTIRFLHSFTMYKLYOKLFLEMIGNOVSKISL 401

RESULT 8
ID      R99948 standard; Protein: 393 AA.
AC      R99948;
DE      23-APR-1997 (first entry)
KW      Osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption;
      osteoporosis.
OS      Synthetic.
FH      Key Location/Qualifiers
FT      Peptide 1..21
FT      /note= "Signal peptide"
FT      Protein 22..393
FT      /note= "Mature OCIF-CBst"
FT      MISC_difference 392
FT      /label= Gln371Ileu
      PN      WO9626217-A1.
      29-AUG-1996.
      20-FEB-1996; J00374.
      20-FEB-1995; JP-054977.
      21-JUL-1995; JP-207508.
      PA      (SNOW) SNOW BRAND MILK PROD CO LTD.
      PI      Goto M, Higashio K, Kobayashi F, Mochizuki S, Morinaga T;
      PI      Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K, Yasuda H;
      DR      WPI: 96-402320/40.
      DR      N-PSDB: T33178.
      PT      DNA encoding osteoclastogenesis inhibitory factor protein - useful
      PT      for bone resorption control, esp. treatment of osteoporosis
      PS      Claim 80; Page 126-128; 183pp; Japanese.
      CC      This sequence represents a mutated version of the full length
      CC      osteoclastogenesis inhibitory factor (OCIF) of the invention. This
      CC      sequence represents OCIF-CBst in which Gln 371 is substituted by
      CC      Leu and amino acids 373-380 of the mature OCIF protein are deleted.
      CC      These changes are caused by the introduction of a restriction site in
      CC      the DNA encoding this protein. The OCIF of the invention has a
      CC      molecular weight by SDS-PAGE of 60 kD under reducing conditions
      CC      and 120 kD under non-reducing conditions. The protein is adsorbed onto
      CC      cation-exchangers or heparin and its activity is lowered after 10 mins
      CC      at 70 deg.C or 30 mins at 56 deg.C, and is lost after 10 mins at 90
      CC      deg.C. OCIF is useful in the control of bone resorption and therefore
      CC      in the treatment and prevention of disorders of bone resorption, e.g.
      CC      osteoporosis.
      SQ      Sequence 393 AA.

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Query Match      97.6%; Score 2957; DB 20; Length 393;
Best Local Similarity 99.5%; Pred. No. 2,036-288;
Matches 391; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Db      1 mnnllccalvfidisikwtgetfppkylyhydeetsbqllcdkcpptylykqhctakwkt 60
      ||:|||||
QY      1 MNKLCCALVFIDISIKWTGETFPPKYLHYDEETSHQLLDCPCPGTYLKQHCIAKWKMT 60
Db      61 vcapcpdhytidswhtsdeslycspvckelgyvkgecnrthnrveeckegryleiefcl 120
      ||:|||||
QY      61 VCAPCPDHYTIDSWHSDCLYCSPVCKELQYVKGECONRTHNRVEECKEGRYLEIEFCL 120
Db      121 hscppgfvvgaqgperntvckrcpddgffsnetskapcrkhtncsvfgllltqgnat 180
      ||:|||||
QY      121 HSCPPGFGVGAQGPERRNTVCKRCPDGFSSNETSKAPCRKHTNCSVFGLLLTQGNAT 180
Db      181 hdnicsgnsesqkcgldvtlceeafrfavptkftpnwlsyvdnlpgtkvnaesveri 240
      ||:|||||
QY      181 HDNICSGNSESQKCGIDVTLCEEAFFRAVPTKFTPNWLSYVDNLPGTKVNAESVERI 240
Db      241 krqhsaqegtfqlklwkhqndqdvkklldqldcensvgrhlganltfeqlrsme 300
      ||:|||||
QY      241 KROHSSQEQTFQLKLWKHQNDQDVKKLIDIDICENSVGRHIGHANLTFEQLRSME 300
Db      301 slpgkkyvgaediektlkaekpsdqllklslwrlnkgddtllglnhalhsktyhfpkt 360
      ||:|||||
QY      301 SLPGKKVGAEDIEKTIKACKPSDOIKLKLSLWRKNGDDTLGLMHALKHSTYHFPKT 360
Db      361 vtqslkktirflhsftmyklygklflemignlv 393
      ||:|||||
QY      361 VTQSLKKTIRFLHSFTMYKLYOKLFLEMIGNV 393

RESULT 9
ID      R99924 standard; Protein: 380 AA.
AC      R99924;
DE      22-APR-1997 (first entry)
KW      Mature osteoclastogenesis inhibitory factor.
      Osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption;
      osteoporosis.
OS      Homo sapiens.
FH      Homo sapiens.
FT      MISC_difference 392
      PN      WO9626217-A1.
      29-AUG-1996.
      20-FEB-1996; J00374.
      20-FEB-1995; JP-054977.
      21-JUL-1995; JP-207508.
      PA      (SNOW) SNOW BRAND MILK PROD CO LTD.
      PI      Goto M, Higashio K, Kobayashi F, Mochizuki S, Morinaga T;
      PI      Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K, Yasuda H;
      DR      WPI: 96-402320/40.
      DR      N-PSDB: T36685.
      PT      DNA encoding osteoclastogenesis inhibitory factor protein - useful
      PT      for bone resorption control, esp. treatment of osteoporosis
      PS      Claim 6; Page 62-64; 183pp; Japanese.
      CC      This sequence represents the mature osteoclastogenesis inhibitory
      CC      factor (OCIF) of the invention. The OCIF has a molecular weight by
      CC      SDS-PAGE of 60 kD under reducing conditions and 120 kD under non-
      CC      reducing conditions. The protein is adsorbed onto cation-exchangers
      CC      or heparin and its activity is lowered after 10 mins at 70 deg.C or
      CC      30 mins at 56 deg.C, and is lost after 10 mins at 90 deg.C. OCIF is
      CC      useful in the control of bone resorption and therefore in the
      CC      treatment and prevention of disorders of bone resorption, e.g.
      CC      osteoporosis.
      SQ      Sequence 380 AA;

Query Match      94.4%; Score 2861; DB 20; Length 380;
Best Local Similarity 100.0%; Pred. No. 1,796-278;
Matches 380; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Db      1 etfppkylyhydeetsbqllcdkcpptylykqhctakwktvcapcpdhytidswhtsdecl 60
      ||:|||||
QY      22 ETFPKYLYHYDEETSHQLLDCPCPGTYLKQHCIAKWKIVCAPCPDHYTIDSWHSDCL 61

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Db 61 ycpvckelgyvkgacnrtthrvceckegrylelefc1khrscppgfyvgaqterntv 120  
 |||  
 QY 82 YCSYVCKELOVYKQECNTRHVRCECKEGRIULEIFCLKHSKCPGFGVYVAGTPEKTV 141  
 Db 121 ckrcpdpffsnetsskacprkhtncsvfg11ltqgnatndjcsnasectqcgldvtl 180  
 |||  
 QY 142 CKRCPDGFSSNETSSKAPCRKHTNCSVFG11LTQGNATHDNICSGNSESTQKCGIDVTL 201  
 Db 181 ceeaffravyptkftpmwlsyvdnlpgtkvnaesverikrqhssqegtfql1kwhqgn 240  
 |||  
 QY 202 CEEFFRFAVPTKFTPMWLSVVDNLPGTKVNAESVERIKQHSSEQTFQLKLMKHQN 261  
 Db 241 kdqgfvkklldldlceavgrhiguanltfegqlrslmesjpgkkyvgaediekckackp 300  
 |||  
 QY 262 KDQGVIVKTIIDIDLCENSVGRHIGUANLTPEQLRSLMESJPGKKVGAEDIEKTKACKP 321  
 Db 301 sdq1kl1slvrkngdgtlkg1mhalkhsklyhfpkvtqslkltlrflshftmkyly 360  
 |||  
 QY 322 SDQ1KL1SLVRKNGDGT1KG1MHALKHSTYHFPKTVQSLKLTIRFLSHFTMXYLY 381  
 |||  
 QY 361 qk1flem1gngvgyvkscl 380  
 |||  
 QY 382 QK1FLEM1GNQVQVKSCL 401  
 |||

RESULT 10  
 ID R99943 standard; Protein; 351 AA.  
 AC R99943;  
 DT 23-APR-1997 (first entry)  
 DE Mutated OCIF, OCIF-CC.  
 KW Osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption;  
 OS Osteoporosis.  
 FH Synthetic.  
 FH Key Location/Qualifiers

FT Peptide 1..21  
 FT /note="Signal peptide"  
 FT Protein 22..351  
 FT /note="Mature OCIF-CC"  
 FT W09626217-A1.  
 PN W09626217-A1.  
 PD 29-AUG-1996.  
 PE 20-FEB-1996; J00374.  
 PR 20-FEB-1995; JP-054977.  
 PR 21-JUL-1995; JP-207508.  
 PA (SNOW ) SNOW BRAND MILK PROD CO LTD.  
 PI Goto M, Higashio K, Kobayashi F, Mochizuki S, Morinaga T;  
 PI Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K, Yasuda H;  
 PI WPI; 96-402320/40.  
 DR N-PSDB; T33173.  
 DR DNA encoding osteoclastogenesis inhibitory factor protein - useful  
 for bone resorption control, esp. treatment of osteoporosis

PS Claim 65; Page 119-121; 183pp; Japanese.  
 CC This sequence represents a mutated version of the full length  
 CC osteoclastogenesis inhibitory factor (OCIF) of the invention. This  
 CC sequence represents OCIF-CC in which amino acids 331-380 of the  
 CC mature OCIF protein are deleted. The OCIF of the invention  
 CC has a molecular weight by SDS-PAGE of 60 kD under reducing conditions  
 CC and 120 kD under non-reducing conditions. The protein is adsorbed onto  
 CC cation-exchangers or heparin and its activity is lowered after 10 mins  
 CC at 70 deg.C or 30 mins at 56 deg.C, and is lost after 10 mins at 90  
 CC deg.C. OCIF is useful in the control of bone resorption and therefore  
 CC in the treatment and prevention of disorders of bone resorption, e.g.  
 CC osteoporosis.  
 CC Sequence 351 AA;  
 SQ

Query Match 87.3%; Score 2644; DB 20; Length 351;  
 Best Local Similarity 99.7%; Pred. No. 5,256-256;  
 Matches 350; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

Db 1 mna1lcealvldisixwtctetfpxkylhdeetsbqldckppgtylqhctakwt 60  
 |||  
 QY 1 MNKLICALVLDISIXWTQETFPFKLYHDEERSHQLDKCPGTYLKHQCTAKWKT 60  
 |||  
 Db 61 vcapcpdhyytdswhtsdeclycspvckelgyvkgacnrtthrvceckegrylelefc1k 120

QY 61 VCACPDPHYTDSNHTSDECLYCSPVCKELOVYKQECNTRHNRHNVCECKEGRYLEIEFC1K 120  
 |||  
 Db 121 hrscppgfyvgaqterntvckrcpdpffsnetsskacprkhtncsvfg11ltqgnat 180  
 |||  
 QY 121 HRSCPFGVYVQAGTPEKTVCKRCRCPDGFSSNETSSKAPCRKHTNCSVFG11LTQGNAT 180  
 Db 181 hdnicsgnsestqcgldvtlceaffravyptkftpmwlsyvdnlpgtkvnaesverl 240  
 |||  
 QY 181 HDNICSNSESTQCGIDVTLCEAFFRFAVPTKFTPMWLSVVDNLPGTKVNAESVERI 240  
 Db 241 krqhsqegtfql1kl1kwhqndqdlvkl1gqdlceavgrhiguanltfegqlrslme 300  
 |||  
 QY 241 KROHSQEQTFQLKLMKHQNKDQIVKTIIDIDLCENSVGRHIGUANLTPEQLRSLME 300  
 Db 301 slpgkkyvgaediekckackpsdq1kl1slvrkngdgtlkg1mhalkh 351  
 |||  
 QY 301 SLPGKKVGAEDIEKTKACKPSDQ1KL1SLVRKNGDGT1KG1MHALKH 351  
 |||

RESULT 11  
 ID R99936 standard; Protein; 360 AA.  
 AC R99936;  
 DT 23-APR-1997 (first entry)  
 DE Mutated OCIF, OCIF-DCR1  
 KW Osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption;  
 OS Osteoporosis.  
 FH Synthetic.  
 FH Key Location/Qualifiers

FT Peptide 1..21  
 FT /note="Signal peptide"  
 FT Protein 22..360  
 FT /note="Mature OCIF-DCR1"  
 FT MISC-difference 22..23  
 FT /note="Position of deletion, delta 2-42"  
 FT W09626217-A1.  
 PN W09626217-A1.  
 PD 29-AUG-1996.  
 PE 20-FEB-1996; J00374.  
 PR 20-FEB-1995; JP-054977.  
 PR 21-JUL-1995; JP-207508.  
 PA (SNOW ) SNOW BRAND MILK PROD CO LTD.  
 PI Goto M, Higashio K, Kobayashi F, Mochizuki S, Morinaga T;  
 PI Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K, Yasuda H;  
 PI WPI; 96-402320/40.  
 DR N-PSDB; T33166.  
 DR DNA encoding osteoclastogenesis inhibitory factor protein - useful  
 for bone resorption control, esp. treatment of osteoporosis

PS Claim 44; Page 105-107; 183pp; Japanese.  
 CC This sequence represents a mutated version of the full length  
 CC osteoclastogenesis inhibitory factor (OCIF) of the invention. This  
 CC sequence represents OCIF-DCR1 in which amino acids 2-42 of the  
 CC mature OCIF protein are deleted. The OCIF of the invention  
 CC has a molecular weight by SDS-PAGE of 60 kD under reducing conditions  
 CC and 120 kD under non-reducing conditions. The protein is adsorbed onto  
 CC cation-exchangers or heparin and its activity is lowered after 10 mins  
 CC at 70 deg.C or 30 mins at 56 deg.C, and is lost after 10 mins at 90  
 CC deg.C. OCIF is useful in the control of bone resorption and therefore  
 CC in the treatment and prevention of disorders of bone resorption, e.g.  
 CC osteoporosis.  
 CC Sequence 360 AA;  
 SQ

Query Match 83.8%; Score 2539; DB 20; Length 360;  
 Best Local Similarity 98.3%; Pred. No. 3,846-245;  
 Matches 341; Conservative 1; Mismatches 4; Indels 1; Gaps 1;

Db 15 slkwtltg-ecpdpdhyytdswhtsdeclycspvckelgyvkgacnrtthrvceckegryle 73  
 |||  
 QY 55 TAKKWTVCACPCDPHYTDSNHTSDECLYCSPVCKELOVYKQECNTRHNRHNVCECKEGRYLE 114  
 |||  
 Db 74 lefelkhrscppgfyvgaqterntvckrcpdpffsnetsskacprkhtncsvfg11lt 133  
 |||  
 QY 115 IEFCLKHRSCPPGFGVYVQAGTPEKTVCKRCRCPDGFSSNETSSKAPCRKHTNCSVFG11LT 174  
 |||

Db 134 qknathdnicsgnsesctgcgldvtlceaeaffiravptkffpnwlsylvdnlpgtkvna 193  
|||||  
QY 175 OKGNATHDNICSGNSESTGCGIDVTLCEAEAFRFAVPTFTPMWLSVLDNLPGTGVNA 234  
Db 194 esverlkrqhsqeqctfqlklwkhqkxdvkkliqddidlcensvqrhghnalfefq 233  
|||||  
QY 235 ESVERIKRHSOSEQFQTLKLMKHQNKDQIVKKIIDDIDLCENSVQRHGHANLTFEEQ 294  
Db 254 lrsimeslpqkkygaedtektkackpsddqlklslwrlkngdgtlkglmhalkhskt 313  
|||||  
QY 295 LRSIMESLPQKKYGAEDIETKTAKCRPSDQLKLSTMRKNGDQTLKGLMHALKHSKT 354  
Db 314 yhipkvtqslkkktrflhsftmkyqklflgmipqvsxisc1 360  
|||||  
QY 355 YHIPKVTQSLKKTIRFLHSFTMXYKLQKLFLEMIGNQVSXISCL 401

RESULT 12  
R99949 standard; Protein; 321 AA.  
R99949;  
23-APR-1997 (first entry)  
DE Mutated OCIF, OCIF-CSpH.  
KW Osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption;  
OS Synthetic.  
FH Key Location/Qualifiers  
FT Peptide 1..21  
FT /note= "Signal peptide"  
FT Protein 22..321  
FT /note= "Mature OCIF-CSpH"  
PN MO9626217-A1.  
PD 29-AUG-1996.  
PF 20-FEB-1996; J00374.  
PR 20-FEB-1995; JP-054977.  
PS 21-JUL-1995; JP-207508.  
PA (SNOW ) SNOW BRAND MILK PROD CO LTD.  
PI Goto M, Higashio K, Kobayashi F, Mochizuki S, Morinaga T;  
PI Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K, Yasuda H;  
PI MPI: 96-402320/40.  
DR N-PSDB; T33179.  
PT DNA encoding osteoclastogenesis inhibitory factor protein - useful  
PT for bone resorption control, esp. treatment of osteoporosis  
PS Claim 83; Page 128-129; 183pp; Japanese.  
CC This sequence represents a mutated version of the full length  
CC osteoclastogenesis inhibitory factor (OCIF) of the invention. This  
CC sequence represents OCIF-CSpH in which amino acids 298-380 of the mature  
CC OCIF protein are replaced by Ser-Leu-Asp. These changes are caused by  
CC the introduction of a restriction site in the DNA encoding this protein.  
CC The OCIF of the invention has a molecular weight by SDS-PAGE of 60 kD  
CC under reducing conditions and 120 kD under non-reducing conditions. The  
CC protein is adsorbed onto cation-exchangers or heparin and its activity is  
CC lowered after 10 mins at 70 deg.C or 30 mins at 56 deg.C, and is lost  
CC after 10 mins at 90 deg.C. OCIF is useful in the control of bone  
CC resorption and therefore in the treatment and prevention of disorders  
CC of bone resorption, e.g. osteoporosis.  
SQ Sequence 321 AA;

Query Match 79.0%; Score 2394; DB 20; Length 321;  
Best Local Similarity 99.7%; Pred. No. 3,78e-230;  
Matches 317; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

Db 1 mnnllccalvfdlslskwtgetfppkylyhydeetsqllldckcpptgylkqhctakwt 60  
|||||  
QY 1 MNKLCCALVFDLISIKWTQETFPFKYLYHYDETSQHLCDKCPPTGYLKQHCTAKWT 60  
Db 61 vcappdhytydswhtsdeclycspvckelgyvkqecnrthrvccckegryleiefcl 120  
|||||  
QY 61 VCAPPDHYTYDSWHTSDECLYCSPVCKELQYVKQECNRTHRVCCCKEGRYLEIEFCL 120  
Db 121 hrcscpgfgyvgaqtpertntvckrcpddgffsnetskapcrkhtncsvfllltqkgnat 180  
|||||  
QY 121 HRCSCPFGYVGAQTPERTNTVCKRCPDGFFSNETS KAPCRKHTNCSVFLLLTQKGNAT 180

Db 181 hdnicsgnsesctgcgldvtlceaeaffiravptkffpnwlsylvdnlpgtkvnaesveri 240  
|||||  
QY 181 HDNICSGNSESTGCGIDVTLCEAEAFRFAVPTFTPMWLSVLDNLPGTKVNAESVERI 240  
Db 241 krqhsqeqctfqlklwkhqkxdvkkliqddidlcensvqrhghnalfefqslsne 300  
|||||  
QY 241 KRHSQEQCTFQLKLMKHQNKDQIVKKIIDDIDLCENSVQRHGHANLTFEQLSLNE 300  
Db 301 slpgkkyvgaedtektlka 318  
|||||  
QY 301 SLPGKKYGAEDIETKTAKA 318

RESULT 13  
R99938 standard; Protein; 360 AA.  
R99938;  
23-APR-1997 (first entry)  
DE Mutated OCIF, OCIF-DCR3.  
KW Osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption;  
OS Synthetic.  
FH Key Location/Qualifiers  
FT Peptide 1..21  
FT /note= "Signal peptide"  
FT Protein 22..360  
FT /note= "Mature OCIF-DCR3"  
FT MISC-difference 105..106  
FT /note= "Position of deletion, delta 85-122"  
PN MO9626217-A1.  
PD 29-AUG-1996.  
PF 20-FEB-1996; J00374.  
PR 20-FEB-1995; JP-054977.  
PS 21-JUL-1995; JP-207508.  
PA (SNOW ) SNOW BRAND MILK PROD CO LTD.  
PI Goto M, Higashio K, Kobayashi F, Mochizuki S, Morinaga T;  
PI Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K, Yasuda H;  
PI MPI: 96-402320/40.  
DR N-PSDB; T33168.  
PT DNA encoding osteoclastogenesis inhibitory factor protein - useful  
PT for bone resorption control, esp. treatment of osteoporosis  
PS Claim 50; Page 109-111; 183pp; Japanese.  
CC This sequence represents a mutated version of the full length  
CC osteoclastogenesis inhibitory factor (OCIF) of the invention. This  
CC sequence represents OCIF-DCR3 in which amino acids 85-122 of the  
CC mature OCIF protein are deleted. The OCIF of the invention  
CC has a molecular weight by SDS-PAGE of 60 kD under reducing conditions  
CC and 120 kD under non-reducing conditions. The protein is adsorbed onto  
CC cation-exchangers or heparin and its activity is lowered after 10 mins  
CC at 70 deg.C or 30 mins at 56 deg.C, and is lost after 10 mins at 90  
CC deg.C. OCIF is useful in the control of bone resorption and therefore  
CC in the treatment and prevention of disorders of bone resorption, e.g.  
CC osteoporosis.  
SQ Sequence 360 AA;

Query Match 75.3%; Score 2282; DB 20; Length 360;  
Best Local Similarity 90.2%; Pred. No. 1.42e-218;  
Matches 359; Conservative 1; Mismatches 0; Indels 38; Gaps 1;

Db 1 mnnllccalvfdlslskwtgetfppkylyhydeetsqllldckcpptgylkqhctakwt 60  
|||||  
QY 1 MNKLCCALVFDLISIKWTQETFPFKYLYHYDETSQHLCDKCPPTGYLKQHCTAKWT 60  
Db 61 vcappdhytydswhtsdeclycspvckelgyvkqecnrthrvccckegryleiefcl 105  
|||||  
QY 61 VCAPPDHYTYDSWHTSDECLYCSPVCKELQYVKQECNRTHRVCCCKEGRYLEIEFCL 120  
Db 106 -----rcpddgffsnetskapcrkhtncsvfllltqkgnat 142  
|||||  
QY 121 HRCSCPFGYVGAQTPERTNTVCKRCPDGFFSNETS KAPCRKHTNCSVFLLLTQKGNAT 180  
Db 143 hdnicsgnsesctgcgldvtlceaeaffiravptkffpnwlsylvdnlpgtkvnaesveri 202  
|||||  
QY 181 HDNICSGNSESTGCGIDVTLCEAEAFRFAVPTFTPMWLSVLDNLPGTKVNAESVERI 240

Db 203 kqhsgeqtfqllklykwhqndqdvkklldidldlcnsvgrhghantfegrlsme 262  
 QY 241 KQHSSQEQTFQLKLMKHONKDDIVKRIIODIDLCNSVGRHGHANLFEQRLSME 300  
 Db 263 slpgkkygaedlektlkaspsdqlkllslwrkngdgtlkglmahlkshkyhfpkt 322  
 QY 301 SLPGKKVGAEDLEKTKKACPSDQILKLLSLWRKNGDDTLKGLMAHLKSHKTYHFPT 360  
 Db 323 vtqslkktirflhsftmyklyqkllflemignvgvskl 360  
 QY 361 VTQSLKKTIRFLHSFTMYKLYOKLFLEMIGNOVOSVKI 398

RESULT 14  
 ID R99939 standard; Protein: 359 AA.

AC R99937;  
 DT 23-APR-1997 (first entry)  
 DE Mutated OCIF, OCIF-DCR4.  
 KM Osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption;  
 OS osteoporosis.  
 FH Synthetic.

Key Location/Qualifiers  
 FH Peptide 1..21  
 FT /note= "Signal peptide"  
 FT Protein 22..359  
 FT /note= "Mature OCIF-DCR4"  
 FT MISC\_difference 143..144  
 FT /note= "Position of deletion, delta 123-164"  
 PN WO9626217-A1.  
 PD 29-AUG-1996.  
 PF 20-FEB-1996; J00374.  
 PR 20-FEB-1995; JP-054977.  
 PR 21-JUL-1995; JP-207508.  
 PA (SNOW) SNOW BRAND MILK PROD CO LTD.  
 PI Goto M, Higashio K, Kobayashi F, Mochizuki S, Morinaga T;  
 PI Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K, Yasuda H;  
 DR WPT:96-402320/40.  
 DR N-PSDB: T33169.  
 PT DNA encoding osteoclastogenesis inhibitory factor protein - useful  
 PT for bone resorption control, esp. treatment of osteoporosis  
 PS Claim 53; Page 111-113; 183pp; Japanese.  
 CC This sequence represents a mutated version of the full length  
 CC osteoclastogenesis inhibitory factor (OCIF) of the invention. This  
 CC sequence represents OCIF-DCR4 in which amino acids 123-164 of the  
 CC mature OCIF protein are deleted. The OCIF of the invention  
 CC has a molecular weight by SDS-PAGE of 60 kD under reducing conditions  
 CC and 120 kD under non-reducing conditions. The protein is adsorbed onto  
 CC cation-exchangers or heparin and its activity is lowered after 10 mins  
 CC at 70 deg.C or 30 mins at 56 deg.C, and is lost after 10 mins at 90  
 CC deg.C. OCIF is useful in the control of bone resorption and therefore  
 CC in the treatment and prevention of disorders of bone resorption, e.g.  
 CC osteoporosis.  
 SQ Sequence 359 AA;

Query Match 74.0%; Score 2242; DB 20; Length 359;  
 Best Local Similarity 89.0%; Pred. No. 1,92e-214;  
 Matches 357; Conservative 1; Mismatches 1; Indels 42; Gaps 1;

Db 1 mnlllcalavflldisikwtgetfppkylhydeetsbhlldckcpbgtylkdnctakwkt 60  
 QY 1 MNLLCALAVFLDLSIKWTTGETFPFKYHYDEETSHQLCDCKPGRYLKHCHTAKWKT 60  
 Db 61 vcapcdhytldswhtsdeciycspvckelqyvkgeantlnrvceckegrylelefcik 120  
 QY 61 VCAPCDHYTLDWSHTSDCLYCSPVCKELQYVKGEANTLNRVCECKEGRYLEIFCICK 120  
 Db 121 hncspgfigvvaqgperntvck----- 143  
 QY 121 HNSCPGFIGVVAQGPERNTVCKRCPDGFSSNETSSKAPCRKHTNCSVFGLLTQKGNAT 180  
 Db 144 -----sgnsesgkcgldvtlceaeafffaypklfpmnlsvlvdnljptkxnaesverl 198  
 QY 144 -----sgnsesgkcgldvtlceaeafffaypklfpmnlsvlvdnljptkxnaesverl 198

QY 181 HDNICSNSSEHQKCGIDVTLCEEAFFRFAVPTKTPMNLVLVDNLPCTKVNASVERI 240  
 Db 199 kqhsgeqtfqllklykwhqndqdvkklldidldlcnsvgrhghantfegrlsme 258  
 QY 241 KQHSSQEQTFQLKLMKHONKDDIVKRIIODIDLCNSVGRHGHANLFEQRLSME 300  
 Db 259 slpgkkygaedlektlkaspsdqlkllslwrkngdgtlkglmahlkshkyhfpkt 318  
 QY 301 SLPGKKVGAEDLEKTKKACPSDQILKLLSLWRKNGDDTLKGLMAHLKSHKTYHFPT 360  
 Db 319 vtqslkktirflhsftmyklyqkllflemignvgvsklsc1 359  
 QY 361 VTQSLKKTIRFLHSFTMYKLYOKLFLEMIGNOVOSVKISCL 401

RESULT 15  
 ID R99937 standard; Protein: 359 AA.

AC R99937;  
 DT 23-APR-1997 (first entry)  
 DE Mutated OCIF, OCIF-DCR2.  
 KM Osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption;  
 OS osteoporosis.  
 FH Synthetic.

Key Location/Qualifiers  
 FH Peptide 1..21  
 FT /note= "Signal peptide"  
 FT Protein 22..359  
 FT /note= "Mature OCIF-DCR2"  
 FT MISC\_difference 63..64  
 FT /note= "Position of deletion, delta 43-84"  
 PN WO9626217-A1.  
 PD 29-AUG-1996.  
 PF 20-FEB-1996; J00374.  
 PR 20-FEB-1995; JP-054977.  
 PR 21-JUL-1995; JP-207508.  
 PA (SNOW) SNOW BRAND MILK PROD CO LTD.  
 PI Goto M, Higashio K, Kobayashi F, Mochizuki S, Morinaga T;  
 PI Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K, Yasuda H;  
 DR WPT:96-402320/40.  
 DR N-PSDB: T33167.  
 PT DNA encoding osteoclastogenesis inhibitory factor protein - useful  
 PT for bone resorption control, esp. treatment of osteoporosis  
 PS Claim 47; Page 107-109; 183pp; Japanese.  
 CC This sequence represents a mutated version of the full length  
 CC osteoclastogenesis inhibitory factor (OCIF) of the invention. This  
 CC sequence represents OCIF-DCR2 in which amino acids 43-84 of the  
 CC mature OCIF protein are deleted. The OCIF of the invention  
 CC has a molecular weight by SDS-PAGE of 60 kD under reducing conditions  
 CC and 120 kD under non-reducing conditions. The protein is adsorbed onto  
 CC cation-exchangers or heparin and its activity is lowered after 10 mins  
 CC at 70 deg.C or 30 mins at 56 deg.C, and is lost after 10 mins at 90  
 CC deg.C. OCIF is useful in the control of bone resorption and therefore  
 CC in the treatment and prevention of disorders of bone resorption, e.g.  
 CC osteoporosis.  
 SQ Sequence 359 AA;

Query Match 73.2%; Score 2218; DB 20; Length 359;  
 Best Local Similarity 89.4%; Pred. No. 5.77e-212;  
 Matches 312; Conservative 5; Mismatches 26; Indels 6; Gaps 6;

Db 15 slkwtq-etfppkylhnde-etshq-llcdk-cppgykqkdnctakktcaekegry 70  
 QY 55 TAKMWTVCAPCPDHY-YNDSWHTSDECLYCSPVCKELQYVQECNRTNRC-ECKESRY 112  
 Db 71 lelefcikhrscppfigvvaqgperntvckrcpdpqffsnetsskaptkntnsvfgll 130  
 QY 71 LEIFCICKHRSCPPFIGVVAQGPERNTVCKRCRCPDGFSSNETSSKAPCRKHTNCSVFGL 172  
 Db 131 ltqgnatdnalcnsgnsesgkcgldvtlceaeaffrfavpklfpmnlsvlvdnljptkv 190  
 QY 131 LTQGNATDNALCNSGNSSTQKCGIDVTLCEEAFFRFAVPTKTPMNLVLVDNLPCTKV 232  
 Db 191 naesverlkqhsgeqtfqllklykwhqndqdvkklldidldlcnsvgrhghantf 250  
 QY 191 naesverlkqhsgeqtfqllklykwhqndqdvkklldidldlcnsvgrhghantf 250



QY	233	NAESVERIKROHSSOEOTFOLKLMKHONKDODIVKKIIOIDIDLCEHSYORHIGHANLTF	292
Db	251	eqIrsImeslpqkkygaediektikackpsdqIklIsIwrikngqdtLkgImhalhs	310
QY	293	EQLRSLMESLPGKRYGAEDIEKTIKACKPSDQILKLISLWRIKNGDQDTLKGIMHALKHS	352
Db	311	KyhfDktvtgsIkkctirfIhstmyKlyhklflemIqnvgsvkIscl	359
QY	353	KTYHPKTYVTSLSKKTIRFLHSFTMKLYOKLPLEMIGNOVOSVKISCL	401

Search completed: Wed Aug 20 09:41:58 1997  
Job time : 60 secs.

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